

Table 1

| Phase Change Material  | Transition   |              | Latent Heat<br>(Btu/lbm) | NOTES   |
|--|--|--------------|--------------------------|---|
|  | °F   | °C           |                          |   |
| Glycerol   | 64.8   | 18.2         | 86.3                     | non-paraffin organic                            |
| Acetic Acid  | 62   | 16.7         | 82.6                     | non-paraffin organic                            |
| Polyethylene Glycol 600  | 68-77  |              | 63                       | non-paraffin organic                            |
| Camphene   | 50   | 10           | 102                      | non-paraffin organic                            |
| Oxasoline Wax  | 122  | 50           |                          | non-paraffin organic                            |
| d-Lactic Acid  | 79   | 26.1         | 79                       | non-paraffin organic                            |
| formic acid  | 47   | 8.3          | 118                      | organic   |
| acrylic acid   | 54   | 12.2         | 66.7                     | organic   |
| p-Xylene   | 56   | 13.3         | 68.1                     | organic   |
| caprylic acid  | 61   | 16.1         | 63.7                     | organic   |
| Jojoba Wax   | 52-53.2  | 11.2-11.8    |                          | insoluble fatty acids of natural oils and waxes |
| Cotton Seed Oil  | 94.1   | 34.5         |                          | insoluble fatty acids of natural oils and waxes |
| Coconut  | 77   | 25           |                          | insoluble fatty acids of natural oils and waxes |
| Almond   | 56.3   | 13.5         |                          | insoluble fatty acids of natural oils and waxes |
| Beechnut   | 74.3   | 23.5         |                          | insoluble fatty acids of natural oils and waxes |
| Black Mustard  | 61.7   | 16.5         |                          | insoluble fatty acids of natural oils and waxes |
| Candlenut  | 68.9   | 20.5         |                          | insoluble fatty acids of natural oils and waxes |
| Castor Oil   | 55.4   | 13           |                          | insoluble fatty acids of natural oils and waxes |
| Corn Oil   | 65.3   | 18.5         |                          | insoluble fatty acids of natural oils and waxes |
| Cotton Seed Stearin  | 83.3   | 28.5         |                          | insoluble fatty acids of natural oils and waxes |
| Esparto  | 63.5   | 17.5         |                          | insoluble fatty acids of natural oils and waxes |
| Poppy Seed   | 68.9   | 20.5         |                          | insoluble fatty acids of natural oils and waxes |
| Rape Seed (Canola)   | 66.2   | 19           |                          | insoluble fatty acids of natural oils and waxes |
| Pumpkin Seed   | 136.4  | 58           |                          | insoluble fatty acids of natural oils and waxes |
| Soy Bean   | 80.6   | 27           |                          | insoluble fatty acids of natural oils and waxes |
| Sunflower  | 73.4   | 23           |                          | insoluble fatty acids of natural oils and waxes |
| Walnut   | 57.74  | 14.3         |                          | insoluble fatty acids of natural oils and waxes |
| White Mustard Seed   | 59.9   | 15.5         |                          | insoluble fatty acids of natural oils and waxes |
| Beeswax  | 143  | 62           | 76                       | insoluble fatty acids of natural oils and waxes |
| NH <sub>4</sub> Cl•Na <sub>2</sub> SO <sub>4</sub> •10H <sub>2</sub> O | 52   | 11.1         | 70                       | hydration-dehydration reaction                  |
| NaCl•NH <sub>4</sub> Cl•2NaSO <sub>4</sub> •20H <sub>2</sub> O         | 55   | 12.8         | 78                       | hydration-dehydration reaction                  |
| NaCl•Na <sub>2</sub> SO <sub>4</sub> •10H <sub>2</sub> O               | 65   | 18.3         | 80                       | hydration-dehydration reaction                  |
| n-tetradecane  | 41.9   | 5.5          | 98                       | hydrocarbon paraffins                           |
| n-pentadecane  | 50   | 10           | 88                       | hydrocarbon paraffins                           |
| n-hexadecane   | 62.1   | 16.7         | 102                      | hydrocarbon paraffins                           |
| n-heptadecane  | 71.1   | 21.7         | 92                       | hydrocarbon paraffins                           |
| n-octadecane   | 82.4   | 28           | 105                      | hydrocarbon paraffins                           |
| n-nanodecane   | 89.6   | 32           |                          | hydrocarbon paraffins                           |
| n-eicosane   | 98.1   | 36.7         | 106                      | hydrocarbon paraffins                           |
| n-heneicosane  | 104.4  | 40.2         | 86                       | hydrocarbon paraffins                           |
| n-decosane   | 111.2  | 44           | 107                      | hydrocarbon paraffins                           |
| n-tricosane  | 117.5  | 47.5         | 100                      | hydrocarbon paraffins                           |
| Trimethylethane  | 178  | 81           |                          | mesocrystalline phase change                    |
| Neopentyl Glycol   |  | 42           |                          | mesocrystalline phase change                    |
| lithium chloride   |  |              |                          |   |
| calcium chloride hydrate   |  |              |                          |   |
| 1-decanol octadecane   |  |              |                          |   |
| C-16 to C-22 alkyl hydrocarbons  |  | 10 to 50     | > 50                     | alkyl hydrocarbon                               |
| natural rubber   |  | varies to 25 |                          | crystalline phase change                        |
| polychloropropene  |  | 32           |                          |   |
| Witco 45A  |  | 31           | >54                      | crystalline alkyl hydrocarbons                  |
| Witco K-61   |  | 24           | >54                      | crystalline alkyl hydrocarbons                  |
| Witco K-51   |  | 17           | >54                      | crystalline alkyl hydrocarbons                  |
| Witco 85010-1  |  | 7            | >54                      | crystalline alkyl hydrocarbons                  |
| pentaerythritol  | plastic crystals (no change of state but release high amounts of E before melting) |              |                          |   |
| polyhydric alcohols  | plastic crystals (no change of state but release high amounts of E before melting) |              |                          |   |
| acrylate and methacrylate polymers                                     |  | -17.8        |                          | with C-16 to C-18 alkyl side chains             |
| CaBr <sub>2</sub> •6H <sub>2</sub> O/NaCl                              | 59   | 15           |                          | hydration-dehydration reaction                  |
| Na <sub>2</sub> SO <sub>4</sub> •10H <sub>2</sub> O/NaCl               | 64   | 17.8         |                          | hydration-dehydration reaction                  |
| CaCl <sub>2</sub> •6H <sub>2</sub> O                                   | 82   | 27.8         |                          | hydration-dehydration reaction                  |
| Na <sub>2</sub> SO <sub>4</sub> •10H <sub>2</sub> O                    | 90   | 32.2         |                          | hydration-dehydration reaction                  |
| CaBr <sub>2</sub> •6H <sub>2</sub> O                                   | 93   | 33.9         |                          | hydration-dehydration reaction                  |